Behavioural Determinants Shaping Protein Intake in European Older Adults

Yung Hung* and Wim Verbeke

Department of Agricultural Economics, Ghent University, Belgium
Coupure Links 653, 9000 Ghent, Belgium

*Corresponding author: Yung.Hung@UGent.be

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Introduction

Protein malnutrition is a major concern in older age owing to its consequences for health, quality of life, and social burden. Ageing brings about physiological, psychological and social changes that affect food choice and consumption (Bloom, et al. 2017, Conklin, et al. 2014, Mann, et al. 2013). Physiological changes such as weakened sense of taste, declined olfactory function, and/or difficult chewing and swallowing may have a negative impact on appetite in older adults, and hence lower protein intake from food (Giacalone, et al. 2016, Mann, Heuberger & Wong 2013). Psychological changes, for instance, reduced inhibitory capacity, increased aversion to innovativeness, and/or increased vulnerability to confirmatory search processes make older adults more prone to rely on habitual food choice and traditional consumption patterns (Drolet, et al. 2017, Drolet, et al. 2011, Yoon, et al. 2009). Social factors such as living conditions have an influence on food and nutrition intake. For example, living alone has been shown to be negatively associated with protein intake or overall diet quality in older adults (Conklin, Forouhi, Surtees, Khaw, Wareham & Monsivais 2014, Hanna & Collins 2015).

Considerable scientific efforts have been directed towards the key to healthy ageing regarding protein intake and malnutrition, yet relevant large-scale studies are rare and fragmented. Therefore, the objectives of this study were threefold. The first objective was to profile the older adults with regard to their socioeconomic, dietary, physical activity and health characteristics, according to appetite and protein intake strata, in order to identify the potential target group for new food products and related marketing efforts. Given the important role of habit, the second objective was to examine how or with what kind of food products the target group's protein intake status might be improved, by identifying the habitual dietary and physical activity behaviours that shape protein intake, while accounting for appetite. Finally, based on the above insights, the third objective was to formulate implications and recommendations for optimal dietary and physical activity strategies for the prevention of protein malnutrition, that meet the specific health needs and match with the preferences and habits of the targeted consumers.

Method

This research is part of the EU-funded project PROMISS ("PRevention Of Malnutrition In Senior Subjects in the EU") within the framework of Horizon 2020 research and innovation programme, contract No. 678732. Cross-country online surveys with a sample of 1,825 older adults (aged 65 years or above) in five European countries (the Netherlands, United Kingdom, Finland, Spain and Poland) were conducted in June 2017. The appetite and protein intake strata were defined based on the simplified nutritional appetite questionnaire (SNAQ) scores (Wilson, et al. 2005), and the predicted probability of a too low protein intake based on food frequency questionnaire data (Wijnhoven, et al. 2018). Two multivariate linear regression models were estimated to identify the behavioural determinants that might explain the probability of a too low protein intake, while accounting for appetite as a possible confounder.

Results and Discussion

Poor appetite was defined as having a total SNAQ score below or equal to 14 (scale range 4 - 20). A too low level of protein intake was defined as having a probability higher than 0.3 that the protein intake was lower than 1.0 gram per kilogram of body weight per day (g/kgBW/d). About half of the studied older adults had a good appetite and (more than) sufficient protein intake (APPI – 45.8%) (*Figure* 1). The primary target groups for new product development and adapted marketing strategies were situated in the UK (rather than in Spain and Finland) and consisted mainly of older adults who live alone. The strata differed in terms of health characteristics, access to food and importance attached to convenience due to mobility, food fussiness, level of knowledge, as well as attitudes towards protein intake and physical activities. Higher risk strata had a lower level of knowledge about dietary protein. Meanwhile, older adults with poor appetite were more aware of the likelihood of having a low protein intake, as they believed more strongly that the amount of protein in their diets might be too little. This is an important point of departure for information provision, which can thus capitalise on a baseline level of awareness of this potential problem among the target population. Interventions to increase knowledge appear to stand a fair chance to be effective at the first sight. However, awareness and knowledge are only the first steps towards behavioural change.

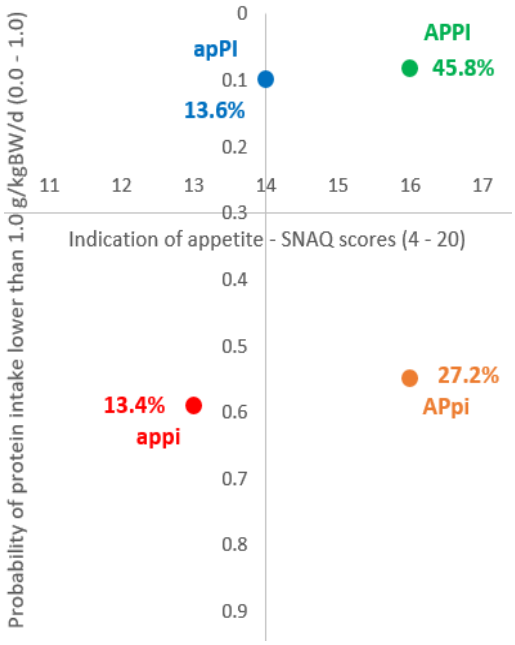

Figure 1. Positioning of the four appetite and protein intake strata (medians, n=1825)

With regard to behavioural determinants, lower food expenditure and lower consumption frequency of specific food groups emerged as risk factors for having a too low protein intake regardless the level of appetite. Consumption of certain foods at a certain moment of the day and physical activity level were associated with a lower risk for low protein intake, which differed upon appetite level. This finding indicates that dietary and physical activity strategies to increase protein intake should be tailored according to older adults' appetite profiles.

Conclusion

This consumer study provides an overview and highlights of the similarities and differences in the profiles of four identified appetite and protein intake strata. Dietary and physical activity and/or new food development strategies should pay attention to sensory characteristics of food products so as to combat poor appetite and food fussiness; to nutritional value such as protein enrichment to increase protein intake; to accessibility to overcome the challenge of low mobility; to affordability to match with lower expenditure on foods; as well as to convenience that fits older adults' ability and/or readiness for meal preparation. This study yields concrete implications and recommendations, so as to help develop solutions that meet older adults' health needs and food-related preferences.

References

Bloom, I., Lawrence, W., Barker, M., Baird, J., Dennison, E., Sayer, A. A., Cooper, C. and Robinson, S. (2017) What influences diet quality in older people? A qualitative study among community-dwelling older adults from the hertfordshire cohort study, uk. *Public health nutrition*, **20**, 2685-2693.

Conklin, A. I., Forouhi, N. G., Surtees, P., Khaw, K.-T., Wareham, N. J. and Monsivais, P. (2014) Social relationships and healthful dietary behaviour: Evidence from over-50s in the epic cohort, uk. *Social science & medicine*, **100**, 167-175.

Drolet, A., Bodapati, A. V., Suppes, P., Rossi, B. and Hochwarter, H. (2017) Habits and free associations: Free your mind but mind your habits. *Journal of the Association for Consumer Research*, **2**, 293-305.

Drolet, A., Schwarz, N. and Yoon, C. (2011) *The aging consumer: Perspectives from psychology and economics*, Routledge.

Giacalone, D., Wendin, K., Kremer, S., Frøst, M. B., Bredie, W. L., Olsson, V., Otto, M. H., Skjoldborg, S., Lindberg, U. and Risvik, E. (2016) Health and quality of life in an aging population–food and beyond. *Food Quality and Preference*, **47**, 166-170.

Hanna, K. L. and Collins, P. F. (2015) Relationship between living alone and food and nutrient intake. *Nutrition reviews*, **73**, 594-611.

Mann, T., Heuberger, R. and Wong, H. (2013) The association between chewing and swallowing difficulties and nutritional status in older adults. *Australian dental journal*, **58**, 200-206.

Wijnhoven, H. A., Elstgeest, L. E., de Vet, H. C., Nicolaou, M., Snijder, M. B. and Visser, M. (2018) Development and validation of a short food questionnaire to screen for low protein intake in community-dwelling older adults: The protein screener 55+(pro55+). *PloS one*, **13**, e0196406.

Wilson, M.-M. G., Thomas, D. R., Rubenstein, L. Z., Chibnall, J. T., Anderson, S., Baxi, A., Diebold, M. R. and Morley, J. E. (2005) Appetite assessment: Simple appetite questionnaire predicts weight loss in community-dwelling adults and nursing home residents–. *The American journal of clinical nutrition*, **82**, 1074-1081.

Yoon, C., Cole, C. A. and Lee, M. P. (2009) Consumer decision making and aging: Current knowledge and future directions. *Journal of Consumer Psychology*, **19**, 2-16.